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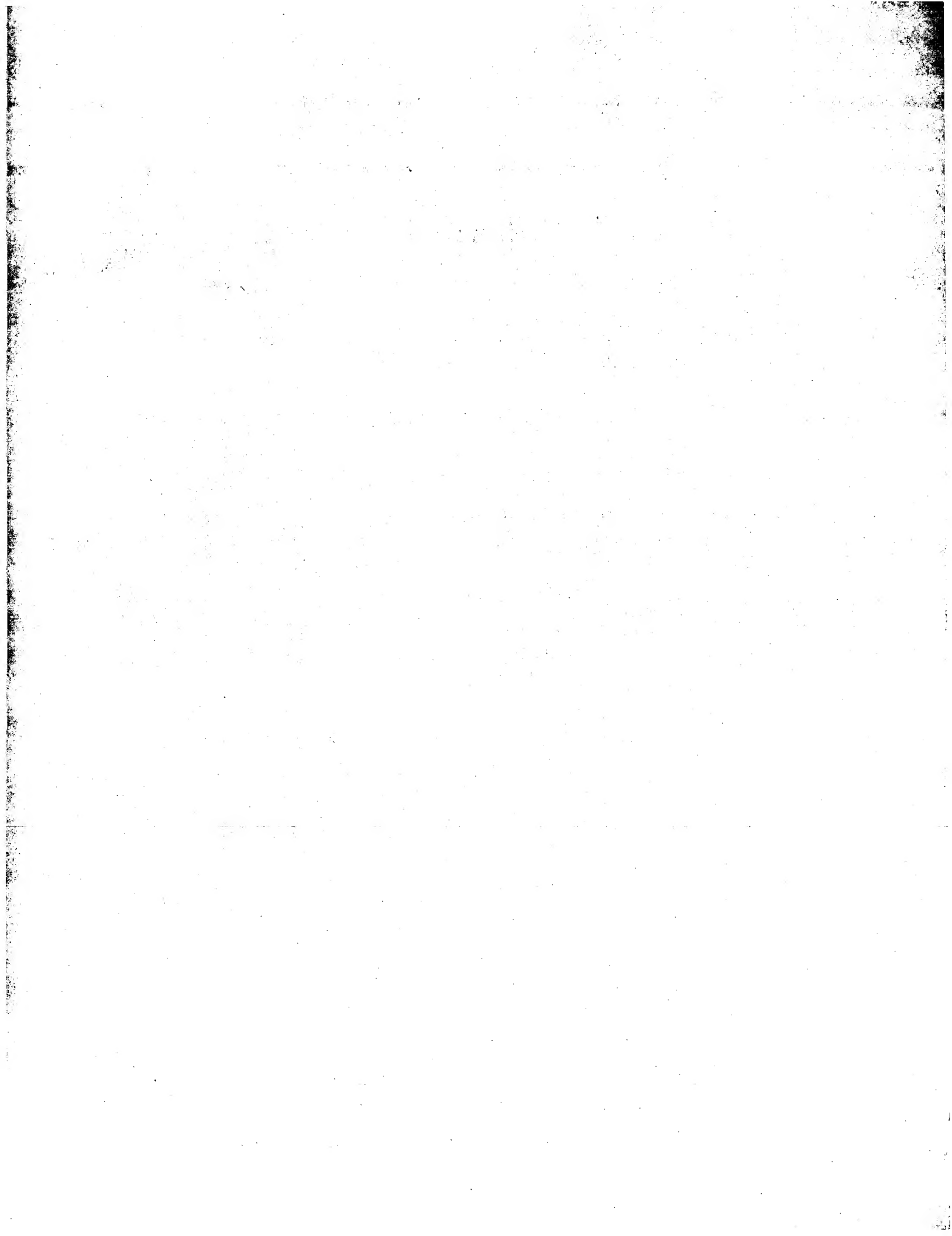
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OM protein - protein search, using sw model

Run on: June 18, 2003, 03:16:37 ; Search time 42.4159 Seconds
(without alignments)
1215.770 Million cell updates/sec

Title: US-09-807-933B-9

Perfect score: 2106
Sequence: 1 MKRTVAITSLAVALALSSA.....TFKEVTCPEALTRSGCERK 387

Scoring table: BLOSUM62
Gap 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :

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22: /SIDB2/gcgdata/geneseq/geneseq-emb1/AA2001.DAT.*
23: /SIDB2/gcgdata/geneseq/geneseq-emb1/AA2002.DAT.*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	2106	100.0	387	21	AA09825
2	2106	100.0	387	21	AA015056
3	2106	100.0	387	23	AA08064
4	1791.5	85.1	338	21	AA09824
5	1791.5	85.1	338	23	AA015055
6	1791.5	85.1	338	23	AA08063
7	1363.5	64.7	366	21	AA08062
8	1363.5	64.7	366	23	AA015053
9	1363.5	64.7	366	23	AA08061
10	1222.5	58.0	338	21	AA09821

11	1222.5	58.0	338	23	AA015052
12	1222.5	58.0	338	21	AA08060
13	1195.5	56.8	360	23	AA09823
14	1195.5	56.8	360	23	AA015054
15	1195.5	56.8	360	23	AA08062
16	1170.5	55.6	346	21	AA09826
17	1170.5	55.6	346	23	AA015057
18	1170.5	55.6	346	23	AA08065
19	966.5	45.9	245	23	AA015063
20	946	44.9	228	23	AA015062
21	769.5	36.5	229	17	AA04928
22	769.5	36.5	299	19	AA063624
23	768.5	36.5	306	19	AA044270
24	767.5	36.4	225	21	AA04798
25	767.5	36.4	225	22	AA080507
26	762.5	36.2	200	19	AA053979
27	761.5	36.2	225	17	AA04925
28	761.5	36.2	297	17	AA04933
29	761.5	36.2	308	17	AA04934
30	760.5	36.1	200	19	AA053967
31	754.5	35.8	200	19	AA053968
32	753.5	35.8	204	19	AA053970
33	740	35.1	223	23	AA015070
34	740	35.1	223	23	AA080602
35	735	34.9	349	17	AA04927
36	729.5	34.6	306	19	AA044269
37	727.5	34.5	304	19	AA044272
38	725	34.4	307	19	AA044273
39	722.5	34.3	202	19	AA053972
40	722.5	34.3	222	17	AA04929
41	722.5	34.3	294	17	AA04937
42	718	34.1	305	19	AA044854
43	718	34.1	305	19	AA041929
44	717	34.0	234	19	AA046618
45	717	34.0	286	19	AA057420

ALIGNMENTS

RESULT 1	AA09825	standard; Protein; 387 AA.
AA09825		
AC	AA09825;	
DT	25-SEP-2000	(first entry)
XX		Endoglucanase protein sequence 5.
XX		Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW		animal foodstuffs.
XX		
OS	Phycomyces nitens.	
XX		
PN	WO200024879-A1.	
PD	04-MAY-2000.	
XX		
PF	25-OCT-1999;	99WO-JP05884.
XX		
PR	23-OCT-1998;	96JP-0302387.
XX		
PA	(MEIJ) MEIJU SEIKA KAISHA LTD.	
XX		
PI	Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;	
PI	Muraishima K, Nakane A, Yaguchi T, Koga J, Muraikami T, Kono T;	
XX		
DR	WPI; 2000-365117/31.	
XX		
DR	N-PSDB; AA062730.	
XX		
PT	Endoglucanases of fungal origin with high activity under alkaline	
PT	conditions for production of paper pulp and animal feedstuffs	

XX Claim 44; Page 125-127; 180pp; Japanese.

PS This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal foodstuffs.

CC Sequence 387 AA;

Query Match 100.0%; Score 2106; DB 21; Length 387;
 Best Local Similarity 100.0%; Pred. No. 6.9e-140;
 Matches 387; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTVAITSIIVAVLALSSSAEASCSVYGGCGGIGMTGPTCCDAGSTCKAOKNKYYSQ 60
 DB 1 MKFTVAITSIIVAVLALSSSAEASCSVYGGCGGIGMTGPTCCDAGSTCKAOKNKYYSQ 60
 QY 61 CIPKPKGSSSSSSCSVYSGCGGIGMSGPTCCESGSTCVAOEGNKYYSQCLPGSHSNAG 120
 DB 61 CIPKPKGSSSSSSCSVYSGCGGIGMSGPTCCESGSTCVAOEGNKYYSQCLPGSHSNAG 120
 QY 121 NASSSTKSTSTKTSTTTAKATATVTTKTVTKTTTSTTAASTSTSSAGKYVYSG 180
 DB 121 NASSSTKSTSTKTSTTTAKATATVTTKTVTKTTTSTTAASTSTSSAGKYVYSG 180
 QY 181 GKSGSGSTRRWDCCKASCSMPGKASVTPGVTCAASNGISLLDANAOSGCNGGPMCN 240
 DB 181 GKSGSGSTRRWDCCKASCSMPGKASVTPGVTCAASNGISLLDANAOSGCNGGPMCN 240
 QY 241 NOPMAVNDLAYGFAAASINAGNEAGMCCGCELTFTSGAASGKMMVVQVNTGDLG 300
 DB 241 NOPMAVNDLAYGFAAASINAGNEAGMCCGCELTFTSGAASGKMMVVQVNTGDLG 300
 QY 301 HFDLQMPGGGVGIFNGCAQMGAPNDGMAFYGVSSVSDCASLPSALQACCKRMFMFK 360
 DB 301 HFDLQMPGGGVGIFNGCAQMGAPNDGMAFYGVSSVSDCASLPSALQACCKRMFMFK 360
 QY 361 NSDNPMTFKEVTCPAELTTRSGCERK 387
 DB 361 NSDNPMTFKEVTCPAELTTRSGCERK 387

RESULT 2

AA015056 standard; Protein; 387 AA.

AC AA015056;

DT 22-AUG-2002 (first entry)

DE Rhizopus arrhizus endoglucanase-related protein 5.

KW Zygomycetes-originated endoglucanase; cellulose binding domain;

KM fibre processing; waste paper de-inking; paper pulp.

OS Mucor circinelloides.

PN WO200242474-A1.

PD 30-MAY-2002.

PF 21-NOV-2001; 2001WO-JP10188.

PR 21-NOV-2000; 2000JP-0354296.

XX

PA (MEIJ) MEIJ SEIKA KAISHA LTD.

XX Nakane A, Baba Y, Koga J, Kubota H;

DR MPI; 2002-471729/50.

DR N-ESDB; AAL43248.

PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
 CC with effect of endoglucanase activity enhanced in processing fibers,
 CC deinking waste paper and improving freeness of paper pulp

PS Claim 5; Page 73-75; 109pp; Japanese.

CC The invention comprises the amino acid and coding sequences of
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The zygomycetes-
 CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.

CC Sequence 387 AA;

Query Match 100.0%; Score 2106; DB 23; Length 387;
 Best Local Similarity 100.0%; Pred. No. 6.9e-140;
 Matches 387; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MKFTVAITSIIVAVLALSSSAEASCSVYGGCGGIGMTGPTCCDAGSTCKAOKNKYYSQ 60
 DB 1 MKFTVAITSIIVAVLALSSSAEASCSVYGGCGGIGMTGPTCCDAGSTCKAOKNKYYSQ 60
 QY 61 CIPKPKGSSSSSSCSVYSGCGGIGMSGPTCCESGSTCVAOEGNKYYSQCLPGSHSNAG 120
 DB 61 CIPKPKGSSSSSSCSVYSGCGGIGMSGPTCCESGSTCVAOEGNKYYSQCLPGSHSNAG 120
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 DB 121 NASSSTKSTSTKTSTTTAKATATVTTKTVTKTTTSTTAASTSTSSAGKYVYSG 180
 QY 181 GKSGSGSTRRWDCCKASCSMPGKASVTPGVTCAASNGISLLDANAOSGCNGGPMCN 240
 DB 181 GKSGSGSTRRWDCCKASCSMPGKASVTPGVTCAASNGISLLDANAOSGCNGGPMCN 240
 QY 241 NOPMAVNDLAYGFAAASINAGNEAGMCCGCELTFTSGAASGKMMVVQVNTGDLG 300
 DB 241 NOPMAVNDLAYGFAAASINAGNEAGMCCGCELTFTSGAASGKMMVVQVNTGDLG 300
 QY 301 HFDLQMPGGGVGIFNGCAQMGAPNDGMAFYGVSSVSDCASLPSALQACCKRMFMFK 360
 DB 301 HFDLQMPGGGVGIFNGCAQMGAPNDGMAFYGVSSVSDCASLPSALQACCKRMFMFK 360
 QY 361 NSDNPMTFKEVTCPAELTTRSGCERK 387
 DB 361 NSDNPMTFKEVTCPAELTTRSGCERK 387

RESULT 3

ABB08064 standard; Protein; 387 AA.

AC ABB08064;

DT 27-AUG-2002 (first entry)

DE M. circinelloides CP99001 MCEII protein.

KW Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;

KM pulp treatment; MCEII.

OS Mucor circinelloides.

XX

FH Key Location/Qualifiers
 FT Peptide 1..22
 FT /note= "signal peptide"
 FT Protein 23..387
 FT /note= "mature protein"
 PN MO200238754-A1.
 PD 16-MAY-2002.
 PF 12-NOV-2001; 2001WO-JP09858.
 PR 10-NOV-2000; 2000JP-0343921.
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 PI Koga J, Nakane A, Baba Y, Kono T;
 PT WPI; 2002-471555/50.
 PT Cellulase preparations containing transconjugant-originated
 PT endoglucanase and non-ionic surfactants, useful in detergent
 PT compositions, in treating cellulose fibers and deinking waste paper and
 PT improving freeness of paper pulp -
 PS Claim 3; Page 29-31; 38pp; Japanese.
 XX The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEII, MCEI, MCEII or PCEI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC M. circinnelloides CP99001 MCEII protein.
 XX
 SQ Sequence 387 AA;
 Query Match 100.0%; Score 2106; DB 23; Length 387;
 Best Local Similarity 100.0%; Pred. No. 6,9e-140;
 Matches 387; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 MKFTVAITSIAVALALSSSAEASCSYVGGCGGIGMTGPTCCDAGSTCKAKQKNNKYYSQ 60
 DB 1 MKFTVAITSIAVALALSSSAEASCSYVGGCGGIGMTGPTCCDAGSTCKAKQKNNKYYSQ 60
 QY 61 CIPPKSSSSSSSCSVSYGCGGIGMSGPTCCESGSTCVAQEGNKYYSCCLPGSHNNAG 120
 DB 61 CIPPKSSSSSSSCSVSYGCGGIGMSGPTCCESGSTCVAQEGNKYYSCCLPGSHNNAG 120
 QY 121 NASTKTKSTSTSTTTAKATATVTTKTVTKTTTSTTAAASTSTSSAGKYVIG 180
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 QY 121 NASTKTKSTSTSTTTAKATATVTTKTVTKTTTSTTAAASTSTSSAGKYVIG 180
 DB 121 NASTKTKSTSTSTTTAKATATVTTKTVTKTTTSTTAAASTSTSSAGKYVIG 180
 QY 181 GKSGSGSTTRRYWDCCKASCWPGKASVTPGPDTCASNGISLLDANAQSGCNGGFMGNN 240
 DB 181 GKSGSGSTTRRYWDCCKASCWPGKASVTPGPDTCASNGISLLDANAQSGCNGGFMGNN 240
 QY 181 GKSGSGSTTRRYWDCCKASCWPGKASVTPGPDTCASNGISLLDANAQSGCNGGFMGNN 240
 DB 181 GKSGSGSTTRRYWDCCKASCWPGKASVTPGPDTCASNGISLLDANAQSGCNGGFMGNN 240
 QY 241 NOPAVANDELAAYGFAAASIAAGNEAGCCGCELTFTTGAASGKGMVVQVNTGDLGSN 300
 DB 241 NOPAVANDELAAYGFAAASIAAGNEAGCCGCELTFTTGAASGKGMVVQVNTGDLGSN 300
 QY 301 HFDLOMFGGAGVIFPGCAAGWGPADGARGVSVSDCASLPSALQAGKMFEMFX 360
 DB 301 HFDLOMFGGAGVIFPGCAAGWGPADGARGVSVSDCASLPSALQAGKMFEMFX 360
 QY 361 NSDNPMTFKVETCPAELTTRSGCERK 387
 DB 361 NSDNPMTFKVETCPAELTTRSGCERK 387

RESULT 4
 ID AAB09824
 ID AAB09824 standard; Protein; 338 AA.
 AC AAB09824;
 XX
 DT 25-SEP-2000 (first entry)
 DE Endoglucanase protein sequence 4.
 XX
 KM Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 KM animal foodstuff.
 OS Mucor circinnelloides.
 XX
 PN MO20024879-A1.
 PD 04-MAY-2000.
 PF 25-OCT-1999; 99WO-JP05884.
 PR 23-OCT-1998; 98JP-0302387.
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
 PI Muraishima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
 DR WPI; 2000-365117/31.
 DR N-PSDB; AAA62729.
 XX
 PT Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs -
 PS Claim 44; Page 120-122; 180pp; Japanese.
 XX This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,
 CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-809830), endoglucanase nucleotide sequences (see
 CC AAA62726-462732) and primers (AAA62733-462802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal foodstuffs.
 XX
 SQ Sequence 338 AA;
 Query Match 85.1%; Score 1791.5; DB 21; Length 338;
 Best Local Similarity 87.3%; Pred. No. 6,8e-118;
 Matches 338; Conservative 0; Mismatches 0; Indels 49; Gaps 1;
 QY 1 MKFTVAITSIAVALALSSSAEASCSYVGGCGGIGMTGPTCCDAGSTCKAKQKNNKYYSQ 60
 DB 1 MKFTVAITSIAVALALSSSAEASCSYVGGCGGIGMTGPTCCDAGSTCKAKQKNNKYYSQ 60
 QY 61 CIPPKSSSSSSSCSVSYGCGGIGMSGPTCCESGSTCVAQEGNKYYSCCLPGSHNNAG 120
 DB 61 CIPPKSSSSSSSCSVSYGCGGIGMSGPTCCESGSTCVAQEGNKYYSCCLPGSHNNAG 120
 QY 31 -----CCGIGMSGPTCCESGSTCVAQEGNKYYSCCLPGSHNNAG 71
 DB 31 -----CCGIGMSGPTCCESGSTCVAQEGNKYYSCCLPGSHNNAG 71
 QY 121 NASTKTKSTSTSTTTAKATATVTTKTVTKTTTSTTAAASTSTSSAGKYVIG 180
 DB 121 NASTKTKSTSTSTTTAKATATVTTKTVTKTTTSTTAAASTSTSSAGKYVIG 180
 QY 72 NASTKTKSTSTSTTTAKATATVTTKTVTKTTTSTTAAASTSTSSAGKYVIG 131
 DB 72 NASTKTKSTSTSTTTAKATATVTTKTVTKTTTSTTAAASTSTSSAGKYVIG 131
 QY 181 GKSGSGSTTRRYWDCCKASCWPGKASVTPGPDTCASNGISLLDANAQSGCNGGFMGNN 240
 DB 181 GKSGSGSTTRRYWDCCKASCWPGKASVTPGPDTCASNGISLLDANAQSGCNGGFMGNN 240
 QY 132 GKSGSGSTTRRYWDCCKASCWPGKASVTPGPDTCASNGISLLDANAQSGCNGGFMGNN 191
 DB 132 GKSGSGSTTRRYWDCCKASCWPGKASVTPGPDTCASNGISLLDANAQSGCNGGFMGNN 191
 QY 241 NOPAVANDELAAYGFAAASIAAGNEAGCCGCELTFTTGAASGKGMVVQVNTGDLGSN 300
 DB 241 NOPAVANDELAAYGFAAASIAAGNEAGCCGCELTFTTGAASGKGMVVQVNTGDLGSN 300

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Db 192 NOPAVNDELAYGFPAASIASGNEAGMCCGCELTFTSGAASGKKRVVQVNTGDDLGN 251
Qy 301 HFDLQMPGGVGI FNGCAQMGAPNDGARYGVSVSDCASLPALQAGCKRFFNFK 360
Db 252 HFDLQMPGGVGI FNGCAQMGAPNDGARYGVSVSDCASLPALQAGCKRFFNFK 311
Qy 361 NSDNPMTFKEVTCPEALTTRSGCERK 387
Db 312 NSDNPMTFKEVTCPEALTTRSGCERK 338

RESULT 5
AA015055
ID AA015055 standard; Protein; 338 AA.
XX
AC AA015055;
XX
DT 22-AUG-2002 (first entry)
XX
DE Rhizopus arrhizus endoglucanase-related protein 4.
XX
KM Zygomyces-originate endoglucanase; cellulose binding domain;
XX fibre processing; waste paper de-inking; paper pulp.
XX
OS Mucor circinelloides.
XX
PN WO200242474-A1.
XX
PD 30-MAY-2002.
XX
PP 21-NOV-2001; 2001WO-JP10188.
XX
PR 21-NOV-2000; 2000JP-0354296.
XX
PA (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI Nakane A, Baba Y, Koga J, Kubota H;
XX
DR WPI; 2002-471729/50.
XX
DR N-PSDB; AAL43247.
XX
PT Cellulose-binding domain-lacking Zygomyces-originate endoglucanase,
XX with effect of endoglucanase activity enhanced in processing fibers,
XX deinking waste paper and improving freeness of paper pulp -
XX
PS Claim 5; Page 68-70; 109pp; Japanese.
XX
CC The invention comprises the amino acid and coding sequences of
XX Zygomyces-originate endoglucanase enzymes lacking the cellulose
XX binding domain. The Zygomyces-originate endoglucanase enzymes of the
XX invention have enhanced endoglucanase activity. The Zygomyces-
XX originate endoglucanase enzymes of the invention are useful for
XX processing fibers, de-inking waste paper and improving the freeness of
XX paper pulp - which is particularly applicable in detergent compositions.
XX The present amino acid sequence represents an endoglucanase-related
XX protein of the invention.
XX
SQ Sequence 338 AA;

Query Match 85.1%; Score 1791.5; DB 23; Length 338;
Best Local Similarity 87.3%; Pred. No. 6.8e-118;
Matches 338; Conservative 0; Mismatches 0; Indels 49; Gaps 1;

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Db 72 NASSTKSTKTSTTTAKATATVTTKTKTTTKTTTSTAASSTSSAGKVISG 133
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Db 132 GSGSGSTTRTWDCVASCSPGKASVTPGDTCAASNGISLIDANOSGNGNPFMCNN 191
Qy 241 NOPAVNDELAYGFPAASIASGNEAGMCCGCELTFTSGAASGKKRVVQVNTGDDLGN 300
Db 192 NOPAVNDELAYGFPAASIASGNEAGMCCGCELTFTSGAASGKKRVVQVNTGDDLGN 251
Qy 301 HFDLQMPGGVGI FNGCAQMGAPNDGARYGVSVSDCASLPALQAGCKRFFNFK 360
Db 252 HFDLQMPGGVGI FNGCAQMGAPNDGARYGVSVSDCASLPALQAGCKRFFNFK 311
Qy 361 NSDNPMTFKEVTCPEALTTRSGCERK 387
Db 312 NSDNPMTFKEVTCPEALTTRSGCERK 338

RESULT 6
AB08063
ID AB08063 standard; Protein; 338 AA.
XX
AC AB08063;
XX
DT 27-AUG-2002 (first entry)
XX
DE M. circinelloides CP99001 MCEI protein.
XX
KM Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
XX pulp treatment; MCEI.
XX
OS Mucor circinelloides.
XX
PN WO200238754-A1.
XX
PD 16-MAY-2002.
XX
PP 12-NOV-2001; 2001WO-JP09858.
XX
PR 10-NOV-2000; 2000JP-0343921.
XX
PA (MEIJ ) MEIJI SEIKA KAISHA LTD.
XX
PI Koga J, Nakane A, Baba Y, Kono T;
XX
DR WPI; 2002-47155/50.
XX
PT Cellulase preparations containing transconjugant-originate
XX endoglucanase and non-ionic surfactants, useful in detergent
XX compositions, in treating cellulose fibers and deinking waste paper and
XX improving freeness of paper pulp -
XX
PS Claim 3; Page 27-29; 38pp; Japanese.
XX
CC The invention relates to a cellulase preparation comprising a
XX transconjugant-originate endoglucanase and a non-ionic surfactant. The
XX endoglucanase is selected from RCEI, RCEII, MCEI, MCEII or PCEI
XX proteins. The preparations are useful in detergent compositions, in
XX treating cellulose fibers and deinking waste paper and improving the
XX freeness of paper pulp. The fibers treated by the preparations have
XX reduced feathering and improved skin-feel and appearance with colour
XX clarification, local change in colour and softening, and after deinking
XX and paper pulp treatment, there is an improvement on freeness of the
XX paper pulp. This treatment with the cellulase preparation can be operated
XX at significantly lower cost. The present sequence represents the

```

CC	XX	SO	Sequence	338 AA:	85.1%; Score 1791.5; DB 23; Length 338; Best Local Similarity 87.3%; Pred. No. 6.8e-118; Matches 338; Conservative 0; Mismatches 0; Indels 49; Gaps 1
M. circinelloides CP99001	MCEI	protein.			
Query Match					
1	1	1	MKPTVAITSIVALALSSAEAAACSSSYGGQCGGIGMTGPTCCDAGSTCKAKDKNKYSQ	60	
2	2	2			
3	3	3			
4	4	4			
5	5	5			
6	6	6	1 MKPTVAITSIVALALSSAEAAACSSSYG-----	30	
7	7	7			
8	8	8			
9	9	9	61 CIPKXSSSSSSCSVYSQCGGIGMTGPTCCESGSTCVAOENKRYYSQCLPGSHNNAG	120	
10	10	10			
11	11	11	31 -----	71	
12	12	12			
13	13	13	121 NASSTKTSTKTSTTTAKATATVTTKVTTKTTTKTTSTTAAASTSTSSSAGYKVISG	180	
14	14	14			
15	15	15	72 NASTTKTSTKTSTTTAKATATVTTKVTTKTTTKTTSTTAAASTSTSSSAGYKVISG	131	
16	16	16			
17	17	17	181 GKSGSGSTTRYWDCCCKASCSPGKASVTPGVDTCAANGISLIDANAQSGCNGNGFMCNN	240	
18	18	18			
19	19	19	132 GKSGSGSTTRYWDCCCKASCSPGKASVTPGVDTCAANGISLIDANAQSGCNGNGFMCNN	191	
20	20	20			
21	21	21	241 NOPNAVDELAYGFPAASIASGENAGMCCGCELTFTSGAAGCKMNVVYTTGGDLGSN	300	
22	22	22			
23	23	23	192 NOPNAVDELAYGFPAASIASGENAGMCCGCELTFTSGAAGCKMNVVYTTGGDLGSN	251	
24	24	24			
25	25	25	301 HFDLQMPGGGVGIFNGCAAOQCAPNDGNGARYGVSVDCASLPSALOAGCKMFPNFK	360	
26	26	26			
27	27	27	252 HFDLQMPGGGVGIFNGCAAOQCAPNDGNGARYGVSVDCASLPSALOAGCKMFPNFK	311	
28	28	28			
29	29	29	361 NSDNPTMTFKEVTCPAELTTRSGCERK	387	
30	30	30			
31	31	31	312 NSDNPTMTFKEVTCPAELTTRSGCERK	338	
32	32	32			
33	33	33			
34	34	34			
35	35	35			
36	36	36			
37	37	37			
38	38	38			
39	39	39			
40	40	40			
41	41	41			
42	42	42			
43	43	43			
44	44	44			
45	45	45			
46	46	46			
47	47	47			
48	48	48			
49	49	49			
50	50	50			
51	51	51			
52	52	52			
53	53	53			
54	54	54			
55	55	55			
56	56	56			
57	57	57			
58	58	58			
59	59	59			
60	60	60			
61	61	61			
62	62	62			
63	63	63			
64	64	64			
65	65	65			
66	66	66			
67	67	67			
68	68	68			
69	69	69			
70	70	70			
71	71	71			
72	72	72			
73	73	73			
74	74	74			
75	75	75			
76	76	76			
77	77	77			
78	78	78			
79	79	79			
80	80	80			
81	81	81			
82	82	82			
83	83	83			
84					

Query Match	64.7%	Score 1363.5	DB 21	Length 366
Best Local Similarity	62.6%	Pred. No. 7.9e-88		
Matches 246	Conservative 49	Mismatches 65	Indels 33	Gaps 9
Sequence 366 AA:				
1 MKPFAITSTIVALALSSS-ABAASSSVYQCGIGTGTPTCCDAGSTCKRQKDKNYKS	59			
1 MKFITTTSSALIALALGTEMAAKCKSLYQCGCGKDMNGPTCCSGSTCKVSNQ--YYS	58			
60 QCIRPKPKSSSSSSSVYSCGIGSGPTCCSGSTCVVAQEGKRYYSQCL-PSGSHSN	118			
59 QCLAPESNGKSSSECKSLYQCGCGKDMNGPTCCSGSTC--KVSNDYISQCLAPES----	112			
119 AGNASTTKCTSTKSTSTYAKATATVTTKVTKTTTKTSTTAASTSTSSAGYKVI	178			
113 --NQNKTSESAAKHTTTTAPR-----KEIT-----TTAKASNSNSSGKYSIV	153			
179 SGGSAGSSSTTRVWDCCAKASGSPKKAIVTGPVDTCAENGISLL-DANAQSCNNGNGM	237			
154 SGASAGNVTRRYWDCCASCSMPKKAIVSSPVKSCNDGVALLDSNVQSCNNGNSYM	213			
238 CKNNOPMVNDLAYGFPAASIASGNEAGMCCGCELTFTSGAASGKMMVQVNTTGGDL	297			
214 CNDNOPMVAVNDLAYGFPAALISGGGSEBWCCELTFTSTSVAGKMMVQVNTTGGDL	273			
298 GSN--HFDLMPGGGVI FNGCAQMGAPNDGMGARYGVSVSDCASLPSALQAGCKM	354			
274 GSGTGAHFHDLQMPGGGVI FNGCSKQMGAPNDGMGSRVGGISSASDCSLPSALQAGCKM	333			
355 RPNMFKNSDNPMTFKYTCPELTTRSGCERK	387			
334 RPNMFKNADNPMTKYTCPELTAKGCSRK	366			
RESULT 8				
AA015053				
AA015053 standard; Protein; 366 AA.				
AA015053;				
22-AUG-2002 (first entry)				
Rhizopus arrhizus endoglucanase-related protein 2.				
Zygomycetes-originated endoglucanase; cellulose binding domain;				
fibre processing; waste paper de-inking; paper pulp.				
Rhizopus arrhizus.				
WO200242474-A1.				
30-MAY-2002.				
21-NOV-2001; 2001WO-JP10188.				
21-NOV-2000; 2000JP-0354296.				
(MEIJ) MEIJI SEIKA KAISHA LTD.				
Nakane A, Baba Y, Koga J, Kubota H,				

XX MPI: 2002-471729/50.
 DR N-PSDB; AAL43245.
 XX Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 PT deinking waste paper and improving freeness of paper pulp
 XX
 PS Claim 5; Page 58-60; 109pp; Japanese.
 XX
 CC The invention comprises the amino acid and coding sequences of
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The zygomycetes-
 CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.
 XX
 SQ Sequence 366 AA;
 Query Match 64.7%; Score 1363.5; DB 23; Length 366;
 Best Local Similarity 62.6%; Pred. No. 7.9e-88;
 Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;
 QY 1 MKFTVAITSIIVALLSSS-ABEASGSSVYGGCGGIGWGTPTCCDASTCRAQKDNKYYS 59
 DB 1 MKFTITTSALLALALGTMAASAKSKLYGCGGKDMNGPTCCSGSTCKVSN--YYS 58
 QY 60 OCIPKPKSSSSSSSCSSVYSGCGGIGWGTPTCCSGSTCVAQEGNKYYSOCL-PSHSNN 118
 DB 59 QCLAPESNKNKSECKSLYGCGGKDMNGPTCCSGSTC--KVSNDIYSQCLAPES--- 112
 QY 119 AGNASTTKTSTKTSTTTAKATATVTTKVTYTTTCTTTTAAASTSTSSAGYKYI 178
 DB 113 --NGNKTSESAAHKTITTTTAPA-----KEIT-----TTAAASNSNSGKYSIV 153
 QY 179 SGGKSGSGSTTRRYWDCCASCSMPGKASVYTPVDTCAANGISLT--DANAQSGCNGNGFM 237
 DB 154 SGGASGNGVTTTRRYWDCCASCSMPGKANVSPVSKCNKGVTRLSNVQSGCNGNSYM 213
 QY 238 CNNNOPMWVNDLAVGFAAASIASNEAGMCCGCELTFTSGAASGKKMVOVNTGDL 297
 DB 214 CNDNPMWVNDLAVGFAAASISGGESEKSCFELTFTSTVAGKKMVIQVNTGDL 273
 QY 298 GSN--HFDLQWPGGVGIFNGCAQWGAAPNDGWRGARYGVSVSDCASLPALQAGCKW 354
 DB 274 GSGTGAHFDLQWPGGVGIFNGCSKQWGAAPNDGWRGARYGISASDCSSLPALQAGCKW 333
 QY 355 RPNMFKNSDNPMTPEKVTCPAELTTRSGCERK 387
 DB 334 RPNMFKNADNPMTPEKVTCPKELTAKTGCSRK 366
 RESULT 9
 ABB08061
 ID ABB08061 standard; protein; 366 AA.
 AC ABB08061;
 XX
 DT 27-AUG-2002 (first entry)
 XX
 DE R. oryzae CP96001 RCEII protein.
 XX
 KW Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KM pulp treatment; RCEII.
 XX
 OS Rhizopus oryzae.
 XX
 FH Key Location/Qualifiers
 FT Peptide 1..23
 FT /note= "signal peptide"

FT Protein 24..366
 FT /note= "mature protein"
 XX
 XX MO200238754-A1.
 XX
 PD 16-MAY-2002.
 XX
 PF 12-NOV-2001; 2001WO-JP09858.
 XX
 XX 10-NOV-2000; 2000JP-0343921.
 XX
 XX (MEIJ) MEIJ SEIKA KAISHA LTD.
 PA
 PI Koga J, Nakane A, Baba Y, Kono T;
 PI MPI: 2002-471555/50.
 XX
 DR Cellulase preparations containing transconjugant-originated
 XX endoglucanase and non-ionic surfactants, useful in detergent
 PT compositions, in treating cellulose fibers and deinking waste paper and
 PT improving freeness of paper pulp
 XX
 PS Claim 3; Page 23-24; 38pp; Japanese.
 XX
 CC The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEII, MCEI, MCEII or PCEI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and deinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after deinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC R. oryzae CP96001 RCEII protein.
 XX
 SQ Sequence 366 AA;
 Query Match 64.7%; Score 1363.5; DB 23; Length 366;
 Best Local Similarity 62.6%; Pred. No. 7.9e-88;
 Matches 246; Conservative 49; Mismatches 65; Indels 33; Gaps 9;
 QY 1 MKFTVAITSIIVALLSSS-ABEASGSSVYGGCGGIGWGTPTCCDASTCRAQKDNKYYS 59
 DB 1 MKFTITTSALLALALGTMAASAKSKLYGCGGKDMNGPTCCSGSTCKVSN--YYS 58
 QY 60 OCIPKPKSSSSSSSCSSVYSGCGGIGWGTPTCCSGSTCVAQEGNKYYSOCL-PSHSNN 118
 DB 59 QCLAPESNKNKSECKSLYGCGGKDMNGPTCCSGSTC--KVSNDIYSQCLAPES--- 112
 QY 119 AGNASTTKTSTKTSTTTAKATATVTTKVTYTTTCTTTTAAASTSTSSAGYKYI 178
 DB 113 --NGNKTSESAAHKTITTTTAPA-----KEIT-----TTAAASNSNSGKYSIV 153
 QY 179 SGGKSGSGSTTRRYWDCCASCSMPGKASVYTPVDTCAANGISLT--DANAQSGCNGNGFM 237
 DB 154 SGGASGNGVTTTRRYWDCCASCSMPGKANVSPVSKCNKGVTRLSNVQSGCNGNSYM 213
 QY 238 CNNNOPMWVNDLAVGFAAASIASNEAGMCCGCELTFTSGAASGKKMVOVNTGDL 297
 DB 214 CNDNPMWVNDLAVGFAAASISGGESEKSCFELTFTSTVAGKKMVIQVNTGDL 273
 QY 298 GSN--HFDLQWPGGVGIFNGCAQWGAAPNDGWRGARYGVSVSDCASLPALQAGCKW 354
 DB 274 GSGTGAHFDLQWPGGVGIFNGCSKQWGAAPNDGWRGARYGISASDCSSLPALQAGCKW 333
 QY 355 RPNMFKNSDNPMTPEKVTCPAELTTRSGCERK 387
 DB 334 RPNMFKNADNPMTPEKVTCPKELTAKTGCSRK 366
 RESULT 10

AAB09821
ID AAB09821 standard; Protein; 338 AA.
XX
AC AAB09821;
XX
DT 25-SEP-2000 (first entry)
XX
DE Endoglucanase protéin sequence 1.
XX
KM Endoglucanase; cellulose breakdown; produce pulp; papermaking;
KW animal foodstuff.
XX
OS Rhizopus oryzae.
XX
PN MO200024879-A1.
XX
PD 04-MAY-2000.
XX
PF 25-OCT-1999; 99WO-JP05884.
XX
PR 23-OCT-1998; 98JP-0302387.
XX
PA (MEIJ) MEIJ SEIKA KAISHA LTD.
XX
PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida H, Nishimura T;
PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
XX
DR WPI; 2000-365117/31.
XX
DR N-PSDB; AAL62726.
XX
PT Endoglucanases of fungal origin with high activity under alkaline
PT conditions for production of paper pulp and animal feedstuffs -
XX
PS Claim 44; Page 106-108; 180pp; Japanese.
XX
CC This sequence represents an endoglucanase protein. The invention relates
CC to an endoglucanase of fungal origin which can completely break down
CC purified cellulose at a concentration of less than 1mg protein/litre,
CC and produces more than 50% breakdown of cellulose at pH 8.5. The
CC invention includes endoglucanase protein sequences (see
CC AAB09825-809830), endoglucanase nucleotide sequences (see
CC AAB62726-A62732) and primers (AAB62733-A62802) which are used in the
CC identification of the endoglucanase sequences, and in the construction of
CC vectors containing the polynucleotides. The endoglucanase enzymes are
CC used for the production of pulp for papermaking and for the production of
CC animal foodstuffs.
CC
XX
SQ Sequence 338 AA;
Query Match 58.0%; Score 1222.5; DB 21; Length 338;
Best Local Similarity 57.1%; Pred. No. 5.6e-78;
Matches 226; Conservative 40; Mismatches 63; Indels 67; Gaps 6;
QY 1 MKFTVAITSIAVALALSSS-AAASCSVYQCGGIGMTGPTCCDAGSTCAQKDNKYYS 59
DB 1 MKFTTIASSALLALALGTEMASAECSKLYGQCGGKMNNGPTCCSGSTCKVSN----- 55
QY 60 QCIPKPKSSSSSSSCSSSVYSCGGIGWSGPTCCBSGSTCVAQENKYYSOCLPGSHSNN 119
DB 56 -----YSSQCLPGSSSGSNK 69
QY 120 GNASTTKTSTKTSITTAATATVTTKTTTSTTTTSTTAASST-----STSSSAGY 175
DB 70 SSESBAHKTTTAAHKKT-----TTAAHKTTTAPAKKTTTAAKASTPSSSSSSSGKY 122
QY 176 KVISGKSGSGSTTRVMDCKKASCSWPGKASVTGFVDTCASNGISL-DANAQSGCNGN 234
DB 123 SAVSGAGSGNCGVTRVMDCKKASCSWPGKAVSSVSKCNDGCTALSDSNAAQSCNGN 182
QY 235 GFMCNNOFPVAVNDELAVGFAAASLAGSNEAGMCCGCELTFTSGAAGSKKVVQVNTG 294
DB 183 SYMCDNDQPMVAVNDMLAVGFAAALISGGESRMCSCPELTFTSTSVAGKVVQVNTG 242

QY 295 GDLGSN---HFDLQMPGCGVGFENGCAQMGAPNDGNGARYGVSVSDCLPSALQAG 351
DB 243 GDLGSSGTGAHFDLQMPGCGVGFENGCSQMGAPNDGNGARYGVSSSDCLPSALQAG 302
QY 352 CKWRFNMFKNSDNPTMTFKEVTCPAELTTRSGCERK 387
DB 303 CKWRFNMFKNADNPMTYKEVTCPEKTIATKGCGRK 338
RESULT 11
AA015052
ID AA015052 standard; Protein; 338 AA.
XX
AC AA015052;
XX
DT 22-AUG-2002 (first entry)
XX
DE Rhizopus arrhizus endoglucanase-related protein 1.
XX
KM Zygomycetes-originated endoglucanase; cellulose binding domain;
KW fibre processing; waste paper de-inking; paper pulp.
XX
OS Rhizopus arrhizus.
XX
PN MO200242474-A1.
XX
PD 30-MAY-2002.
XX
PF 21-NOV-2001; 2001WO-JP10188.
XX
PR 21-NOV-2000; 2000JP-0354296.
XX
PA (MEIJ) MEIJ SEIKA KAISHA LTD.
XX
PI Nakane A, Baba Y, Koga J, Kubota H;
XX
DR WPI; 2002-471729/50.
XX
DR N-PSDB; AAL43244, AAL43250.
XX
PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
PT with effect of endoglucanase activity enhanced in processing fibers,
PT deinking waste paper and improving freeness of paper pulp -
XX
PS Claim 5; Page 54-55; 109pp; Japanese.
XX
CC The invention comprises the amino acid and coding sequences of
CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
CC invention have enhanced endoglucanase activity. The zygomycetes-
CC originated endoglucanase enzymes of the invention are useful for
CC processing fibres, de-inking waste paper and improving the freeness of
CC paper pulp - which is particularly applicable in detergent compositions.
CC The present amino acid sequence represents an endoglucanase-related
CC protein of the invention.
XX
SQ Sequence 338 AA;
Query Match 58.0%; Score 1222.5; DB 23; Length 338;
Best Local Similarity 57.1%; Pred. No. 5.6e-78;
Matches 226; Conservative 40; Mismatches 63; Indels 67; Gaps 6;
QY 1 MKFTVAITSIAVALALSSS-AAASCSVYQCGGIGMTGPTCCDAGSTCAQKDNKYYS 59
DB 1 MKFTTIASSALLALALGTEMASAECSKLYGQCGGKMNNGPTCCSGSTCKVSN----- 55
QY 60 QCIPKPKSSSSSSSCSSSVYSCGGIGWSGPTCCBSGSTCVAQENKYYSOCLPGSHSNN 119
DB 56 -----YSSQCLPGSSSGSNK 69
QY 120 GNASTTKTSTKTSITTAATATVTTKTTTSTTTTSTTAASST-----STSSSAGY 175
DB 70 SSESBAHKTTTAAHKKT-----TTAAHKTTTAPAKKTTTAAKASTPSSSSSSSGKY 122

QY 176 KVISGKSGSGSTTRWDCCKASCSWPGKASVTGPDTCASNGISLT-DANAQSGCNGN 234
 DB 123 SAVSGASGNGVTTTRWDCCKASCSWPGKANVSPPVKSCNDGVTALSDSNAQSGCNGN 182
 QY 235 GFWCANNOPWAVNDELAVGFAPAAASIASNEAGWCCGCYELFTTSGAAGKKNVQVNTG 294
 DB 183 SYMCDNNOQWAVNDLAVGFAPAAASISGCGESRMCSCCFELTFTSTSVAGKKNVQVNTG 242
 QY 295 GDLGSR--HFDLQWPGGVCIFNGCAQWGAPODGMGARYGVSVSDCASLPSALQAG 351
 DB 243 GDLGSRGAFDLOWPGGVCIFNGCSCQWCAFPDGMGARYGVSVSDCASLPSALQAG 302
 QY 352 CKRFRFNPKNSDNPTMTFKEVTCPAELTTRSGCERK 387
 DB 303 CKRFRFNPKNADNPMTFKEVTCPEKITAATGCSRK 338
 RESULT 12
 ABB08060 standard; protein; 338 AA.
 ID ABB08060;
 AC ABB08060;
 DT 27-AUG-2002 (first entry)
 DE R. oryzae CP96001 RCEI protein.
 KM Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 OS pulp treatment; RCEI.
 XX Rhizopus oryzae.
 XX
 FH Key Location/Qualifiers
 FT Peptide 1..23
 FT /note= "signal peptide"
 FT Protein 24..338
 FT /note= "mature protein"
 PN MO200238754-A1.
 PD 16-MAY-2002.
 PF 12-NOV-2001; 2001WO-JP09858.
 PR 10-NOV-2000; 2000JP-0343921.
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 PI Koga J, Nakane A, Baba Y, Kono T;
 PS WPI; 2002-471555/50.
 DR
 XX Cellulase preparations containing transconjugant-originated
 PT endoglucanase and non-ionic surfactants, useful in detergent
 FT compositions, in treating cellulose fibers and delinking waste paper and
 PT improving freeness of paper pulp
 XX
 PS Claim 3; Page 21-22; 38pp; Japanese.
 XX The invention relates to a cellulase preparation comprising a
 CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
 CC endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCRI
 CC proteins. The preparations are useful in detergent compositions, in
 CC treating cellulose fibers and delinking waste paper and improving the
 CC freeness of paper pulp. The fibers treated by the preparations have
 CC reduced feathering and improved skin-feel and appearance with colour
 CC clarification, local change in colour and softening, and after delinking
 CC and paper pulp treatment, there is an improvement on freeness of the
 CC paper pulp. This treatment with the cellulase preparation can be operated
 CC at significantly lower cost. The present sequence represents the
 CC R. oryzae CP96001 RCEI protein.
 XX
 SO Sequence 338 AA;

Query Match 58.0%; Score 1222.5; DB 23; Length 338;
 Best Local Similarity 57.1%; Pred. No. 5,6e-78;
 Matches 226; Conservative 40; Mismatches 63; Indels 67; Gaps 6;
 QY 1 MKPTVAITSIALVALASS-ANASCSYVGGCGIGTGTCTDAGSTCKAKDNKRYVS 59
 DB 1 MKPTIASALLALALIGTEMASAECSKLYGCGGKNMNGPTCSGSGTCKVSD----- 55
 QY 60 QCIPIKXSSSSSSSVYSGCGGIGMGPCTCESGSTVAEGKYYSOCLPSSHNNNA 119
 DB 56 -----YSQCLPSSGSGNK 69
 QY 120 GNASTKTKSTSTKSTTTAKATATVTTKTVTKTTTSTTAAAGT-----STSSAGY 175
 DB 70 SSSAHKKTTHAKHKT-----TTHAKKTTHAPAKKTTHVAKASTPSNSSSSSGKY 122
 QY 176 KVISGKSGSGSTTRWDCCKASCSWPGKASVTGPDTCASNGISLT-DANAQSGCNGN 234
 DB 123 SAVSGASGNGVTTTRWDCCKASCSWPGKANVSPPVKSCNDGVTALSDSNAQSGCNGN 182
 QY 235 GFWCANNOPWAVNDELAVGFAPAAASIASNEAGWCCGCYELFTTSGAAGKKNVQVNTG 294
 DB 183 SYMCDNNOQWAVNDLAVGFAPAAASISGCGESRMCSCCFELTFTSTSVAGKKNVQVNTG 242
 QY 295 GDLGSR--HFDLQWPGGVCIFNGCAQWGAPODGMGARYGVSVSDCASLPSALQAG 351
 DB 243 GDLGSRGAFDLOWPGGVCIFNGCSCQWCAFPDGMGARYGVSVSDCASLPSALQAG 302
 QY 352 CKRFRFNPKNSDNPTMTFKEVTCPAELTTRSGCERK 387
 DB 303 CKRFRFNPKNADNPMTFKEVTCPEKITAATGCSRK 338
 RESULT 13
 AAB09823
 ID AAB09823 standard; Protein; 360 AA.
 AC AAB09823;
 DT 25-SEP-2000 (first entry)
 DE Endoglucanase protein sequence 3.
 KM Endoglucanase; cellulose breakdown; produce pulp; papermaking;
 OS animal feedstuff.
 XX Rhizopus oryzae.
 XX
 PN MO200024879-A1.
 PD 04-MAY-2000.
 PF 25-OCT-1999; 99WO-JP05884.
 PR 23-OCT-1998; 98UP-0302387.
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 PI Nakamura Y, Moriya T, Baba Y, Yanai K, Sumida N, Nishimura T;
 PI Murashima K, Nakane A, Yaguchi T, Koga J, Murakami T, Kono T;
 PS WPI; 2000-365117/31.
 DR N-PSDB; AAB62728.
 XX Endoglucanases of fungal origin with high activity under alkaline
 PT conditions for production of paper pulp and animal feedstuffs
 XX
 PS Claim 44; Page 115-117; 180pp; Japanese.
 CC This sequence represents an endoglucanase protein. The invention relates
 CC to an endoglucanase of fungal origin which can completely break down
 CC purified cellulose at a concentration of less than 1mg protein/litre,

CC and produces more than 50% breakdown of cellulose at pH 8.5. The
 CC invention includes endoglucanase protein sequences (see
 CC AAB09825-B09830), endoglucanase nucleotide sequences (see
 CC AAA62726-A62732), and primers (AAA62733-A62802) which are used in the
 CC identification of the endoglucanase sequences, and in the construction of
 CC vectors containing the polynucleotides. The endoglucanase enzymes are
 CC used for the production of pulp for papermaking and for the production of
 CC animal feedstuffs.

XX
 SQ Sequence 360 AA;

Query Match 56.8%; Score 1195.5; DB 21; Length 360;
 Best Local Similarity 56.2%; Pred. No. 4.7e-76;
 Matches 221; Conservative 47; Mismatches 86; Indels 39; Gaps 6;

QY 1 MKPVTALTSIAVALALSSS-ABAASCSVYQCGGIGMTGPTCCDAGSTCKAOKDKNTYS 59
 DB 1 MKPVTALTSIAVALALSSS-ABAASCSVYQCGGIGMTGPTCCDAGSTCKAOKDKNTYS 60
 QY 60 QCIKPKGSSSSSSSSSVYQCGGIGMTGPTCCDAGSTCKAOKDKNTYS 119
 DB 61 QCVNENMLTSTNKSHTK-----TTTESAKKTTTKGSK----- 94

QY 120 GNASSTKSTKTS--TTAKATATVTKVTKTTTKTTTSTTAASTSTSSAGYK 177
 DB 95 -----KTTTTEASKKTTTTEASKKTTTTEASKKTTT--TTTKASTSTSSSSASTNYSA 147

QY 178 ISGKSSGSGSTTRWDCCKASCMPKASVTGPVDTCAASNGISILDANAQSGCNGNGFM 237
 DB 148 VSGGASNGGERTTRWDCCKASCMPKADVTSPVSGCNKDKTLADNNTONGCVCVGSST 207

QY 238 CANNOPAVNDELAYGPAALSIAGSNEAGCCGCELTFTSGAAGKMMVQVNTGDL 297
 DB 208 CNDNQPVNVDLALYGPAAASISGSEATWCACFELFTSTAVKGMVQVNTGDL 267

QY 298 GSN---HFDLQMPGSGVIFNGCAQWGAAPDGMGARYGVSSVSDCASLPSALQAGCKM 354
 DB 268 GSNTHAFDLOMPGSGVIFNGCATQWGAAPDGMGARYGVSSASDCSNLPSALQAGCKM 327

QY 355 RFNMFKNSDNPMTFKEVTCPEALITRSGCERK 387
 DB 328 RFGWFKADNPMTYKQVTCPEKAITAKSGCSRK 360

RESULT 14
 ID AAO15054 standard; Protein; 360 AA.
 AC AAO15054;
 XX
 DT 22-AUG-2002 (first entry)
 XX
 DE Rhizopus arrhizus endoglucanase-related protein 3.
 XX
 KM Zygomycetes-originated endoglucanase; cellulose binding domain;
 KM fibre processing; waste paper de-inking; paper pulp.
 XX
 OS Rhizopus arrhizus.
 XX
 PN WO200242474-A1.
 XX
 PD 30-MAY-2002.
 XX
 PF 21-NOV-2001; 2001WO-JP10188.
 XX
 PR 21-NOV-2000; 2000JP-0354236.
 XX
 PA (MEIJ) MEIJI SEIKA KAISHA LTD.
 XX
 PI Nakane A, Baba Y, Koga J, Kubota H;
 XX
 DR WPI; 2002-471229/50.
 DR N-PSDB; AAL43246.

XX
 PT Cellulose-binding domain-lacking Zygomycetes-originated endoglucanase,
 PT with effect of endoglucanase activity enhanced in processing fibers,
 PT deinking waste paper and improving freeness of paper pulp
 XX
 PS Claim 5; Page 63-65; 109pp; Japanese.
 XX
 CC The invention comprises the amino acid and coding sequences of
 CC zygomycetes-originated endoglucanase enzymes lacking the cellulose
 CC binding domain. The zygomycetes-originated endoglucanase enzymes of the
 CC invention have enhanced endoglucanase activity. The zygomycetes-
 CC originated endoglucanase enzymes of the invention are useful for
 CC processing fibres, de-inking waste paper and improving the freeness of
 CC paper pulp - which is particularly applicable in detergent compositions.
 CC The present amino acid sequence represents an endoglucanase-related
 CC protein of the invention.

XX
 SQ Sequence 360 AA;

Query Match 56.8%; Score 1195.5; DB 23; Length 360;
 Best Local Similarity 56.2%; Pred. No. 4.7e-76;
 Matches 221; Conservative 47; Mismatches 86; Indels 39; Gaps 6;

QY 1 MKPVTALTSIAVALALSSS-ABAASCSVYQCGGIGMTGPTCCDAGSTCKAOKDKNTYS 59
 DB 1 MKPVTALTSIAVALALSSS-ABAASCSVYQCGGIGMTGPTCCDAGSTCKAOKDKNTYS 60

QY 60 QCIKPKGSSSSSSSSSVYQCGGIGMTGPTCCDAGSTCKAOKDKNTYS 119
 DB 61 QCVNENMLTSTNKSHTK-----TTTESAKKTTTKGSK----- 94

QY 120 GNASSTKSTKTS--TTAKATATVTKVTKTTTKTTTSTTAASTSTSSAGYK 177
 DB 95 -----KTTTTEASKKTTTTEASKKTTTTEASKKTTT--TTTKASTSTSSSSASTNYSA 147

QY 178 ISGKSSGSGSTTRWDCCKASCMPKASVTGPVDTCAASNGISILDANAQSGCNGNGFM 237
 DB 148 VSGGASNGGERTTRWDCCKASCMPKADVTSPVSGCNKDKTLADNNTONGCVCVGSST 207

QY 238 CANNOPAVNDELAYGPAALSIAGSNEAGCCGCELTFTSGAAGKMMVQVNTGDL 297
 DB 208 CNDNQPVNVDLALYGPAAASISGSEATWCACFELFTSTAVKGMVQVNTGDL 267

QY 298 GSN---HFDLQMPGSGVIFNGCAQWGAAPDGMGARYGVSSVSDCASLPSALQAGCKM 354
 DB 268 GSNTHAFDLOMPGSGVIFNGCATQWGAAPDGMGARYGVSSASDCSNLPSALQAGCKM 327

QY 355 RFNMFKNSDNPMTFKEVTCPEALITRSGCERK 387
 DB 328 RFGWFKADNPMTYKQVTCPEKAITAKSGCSRK 360

RESULT 15
 ID ABB08062 standard; protein; 360 AA.
 AC ABB08062;
 XX
 DT 27-AUG-2002 (first entry)
 XX
 DE R. oryzae CP96001 RCEII protein.
 XX
 KM Cellulase; endoglucanase; surfactant; detergent; cellulose; paper;
 KM pulp treatment; RCEII.
 XX
 OS Rhizopus oryzae.
 XX
 FH Key
 FH Peptide 1..23 Location/Qualifiers
 FT /note= "signal peptide" 24..360
 FT Protein /note= "mature protein"

PN WO200238754-A1.
XX
PD 16-MAY-2002.
XX
PF 12-NOV-2001; 2001WO-JP09858.
XX
PR 10-NOV-2000; 2000JP-0343921.
XX
PA (MEIJU) MEIJU SEIKA KAISHA LTD.
XX
PI Koga J, Nakane A, Baba Y, Kono T;
XX
DR WPI; 2002-47155/50.
XX
PT Cellulase preparations containing transconjugant-originated
PT endoglucanase and non-ionic surfactants, useful in detergent
PT compositions, in treating cellulose fibers and delinking waste paper and
XX improving freeness of paper pulp
XX
PS Claim 3; Page 25-27; 38pp; Japanese.
XX
CC The invention relates to a cellulase preparation comprising a
CC transconjugant-originated endoglucanase and a non-ionic surfactant. The
CC endoglucanase is selected from RCEI, RCEII, RCEIII, MCEI, MCEII or PCEI
CC proteins. The preparations are useful in detergent compositions, in
CC treating cellulose fibers and delinking waste paper and improving the
CC freeness of paper pulp. The fibers treated by the preparations have
CC reduced feathering and improved skin-feel and appearance with colour
CC clarification, local change in colour and softening, and after delinking
CC and paper pulp treatment, there is an improvement on freeness of the
CC paper pulp. This treatment with the cellulase preparation can be operated
CC at significantly lower cost. The present sequence represents the
CC R. oryzae CP96001 RCEIII protein.
XX
SQ Sequence 360 AA:

Query Match 56.8%; Score 1195.5; DB 23; Length 360;
Best Local Similarity 56.2%; Pred. No. 4.7e-76;
Matches 221; Conservative 47; Mismatches 86; Indels 39; Gaps 6;

QY 1 MKPTVAITSIAYALALSSS-AEASGSSVYGCCGIGMTGPTCCDAGSTCAQKDKRYYS 59
DB 1 MKFELIASAIALAVGEMAHAECKAYYQCGGNWDGPTCCSGSTCVDPDNPYS 60
QY 60 QCIPIKRGSSSSSSSSSVYSGGIGMSGPTCCSGSTCAQEGNKKYYSQCLPGSHSNA 119
DB 61 QCVPMENLITSTKSGHT-----TTTSAKKTITTKSGK----- 94
QY 120 GNASSTKSTKTS--TTAKATATVTTKTTKTTKTTKTTSTAASSTSSAGYV 177
DB 95 -----KTTTBASKKTTTBASKKTTTBASKKTTTAKASISTSSSSSASTNYS 147
QY 178 ISGAGSGSGSTTRYWDCCKASCNPGASVTPGVDTCASNGISLIDANAGCNGNGFM 237
DB 148 VSGGASGNGEITRYWDCCKPSCSWPGADVTSPVSGCNKDKTLADNNTONGCVGSSYT 207
QY 238 CANNOPWAVNDELAYFAAASIAAGNBAGCCGCELTFTSGAAGKIMVQVNTGADL 297
DB 208 CNDNQPWVSDPLAVGFAAASISGSRNTCCACFELTFTSTAVKGMVQVNTGSDL 267
QY 298 GSN---HPTLQPGGSGVIFNGCAAKGAPNDGAGRYGVSSVSDCASLPSALOAGCKW 354
DB 268 GSNTHAFDLQMPGGGAGVINGCARQWGAIPDGMAGRYGVSSASDGSNLPALQAGCKW 327
QY 355 RFNWFKNSDNPTMTPEKVTCPALVTRSGCERK 387
DB 328 RFQWFKNADNPTMTYKQVTCPKAITAKSGCSRK 360

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